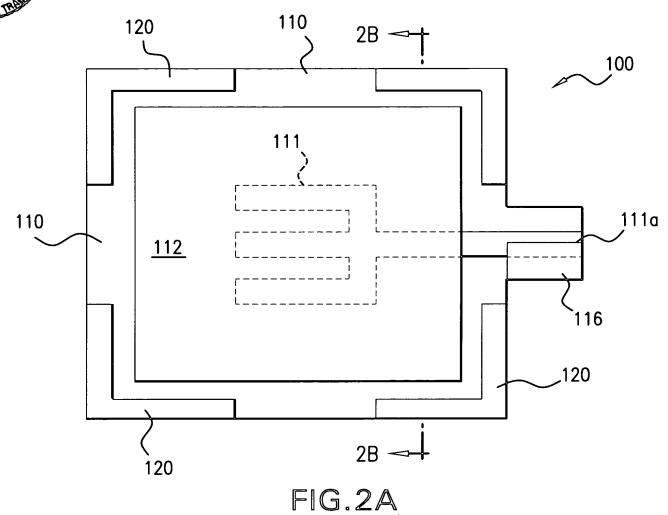


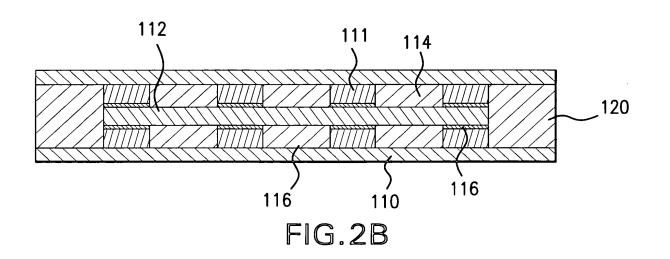
Title: N

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Title: Multi-Input, Multi-Output Motion Control for a

Lithography System Sheet 2 of 21



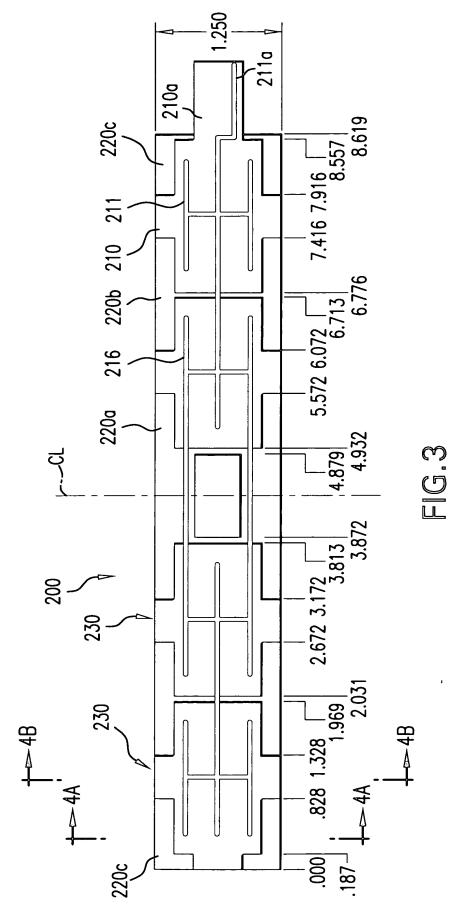


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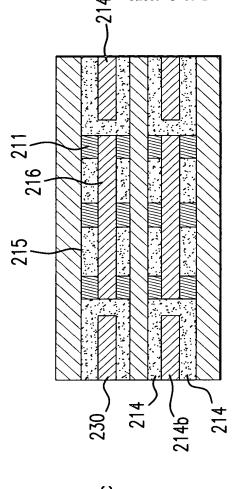
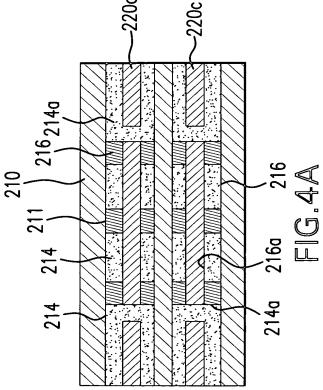


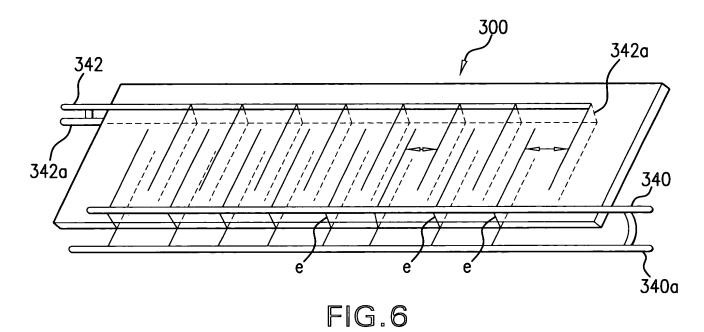
FIG.48

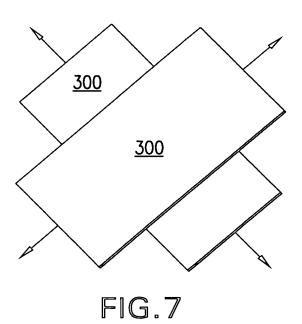


2001-0066-01 Baruch Pletner, et al. USSN 09/803,320 Filed: March 9, 2001 Title: Multi-Input, Multi-Output Motion Control for a Lithography System Sheet 6 of 21 FIG.24 216, 220 216, 220 210_ 216 216 T 0 9 220a 210 LAYER 3 SPACER/PIEZO LAYER 2 CONDUCTOR LAYER 1 POLYIMIDE



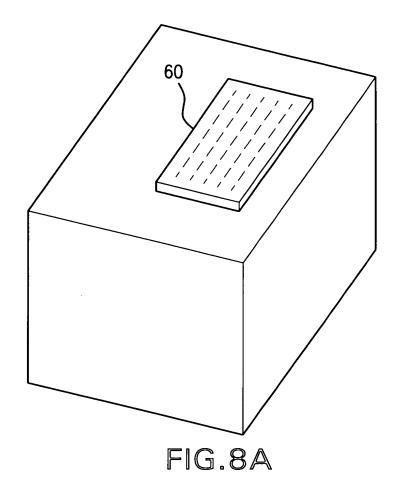
Title: Multi-Input, Multi-Output Motion Control for a Lithography System
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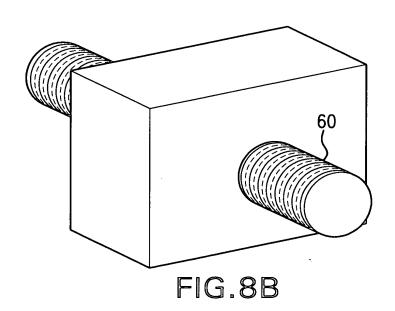






Title: Multi-Input, Multi-Output Motion Control for a Lithography System Sheet 8 of 21







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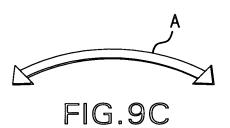
Title: Multi-Input, Multi-Output Motion Control for a Lithography System

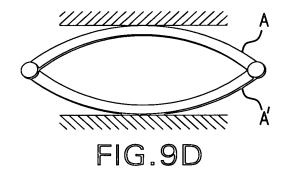
Lithography System Sheet 9 of 21

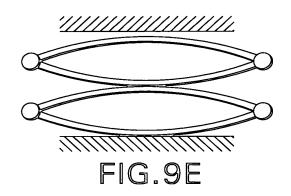


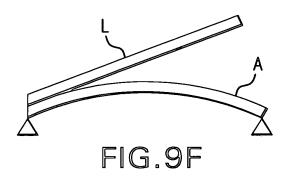
A

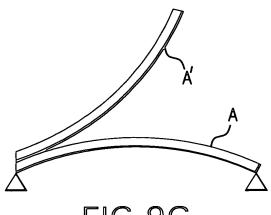
FIG.9B











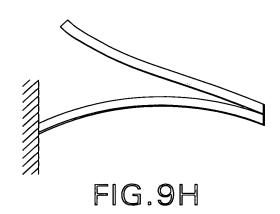
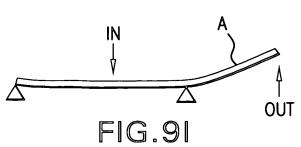


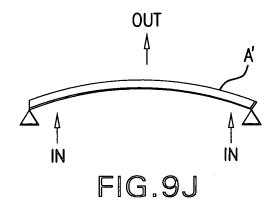
FIG.9G

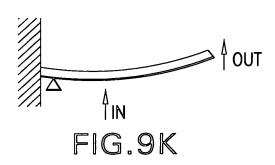


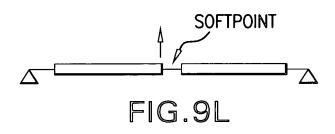
Title: Multi-Input, Multi-Output Motion Control for a

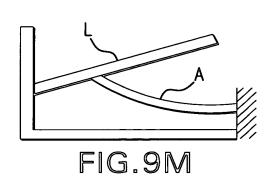
Lithography System Sheet 10 of 21

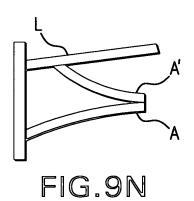


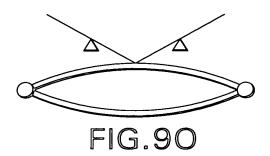








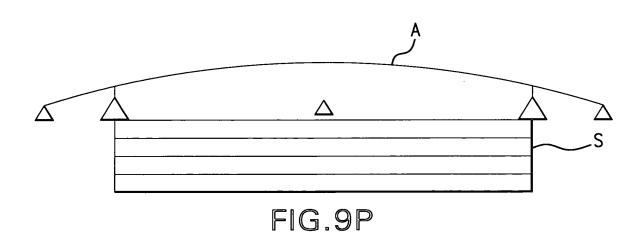


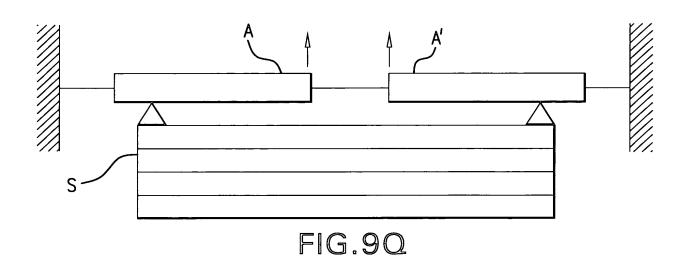




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Title: Multi-Input, Multi-Output Motion Control for a

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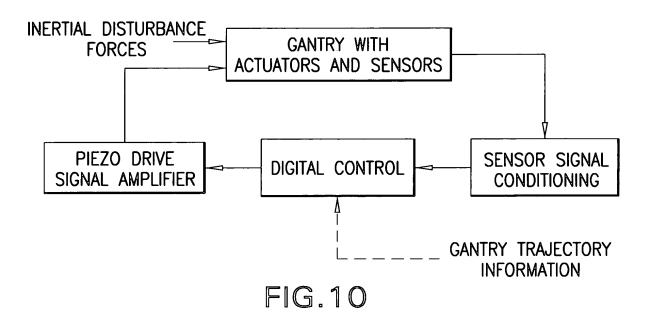






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FREQUENCY RESPONSES IN Y DIRECTION, WITH AND WITHOUT CONTROL

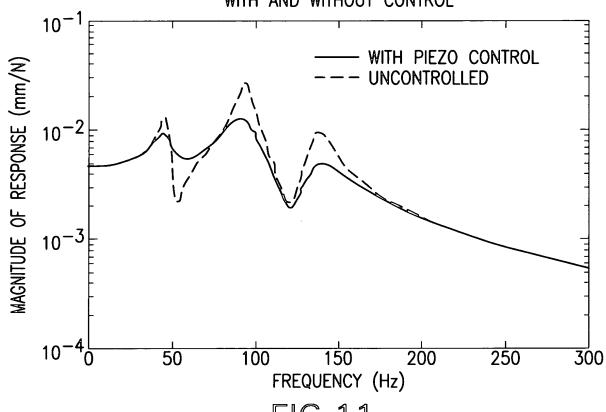


FIG.11



Title: Multi-Input, Multi-Output Motion Control for a Lithography System Sheet 14 of 21

TIME RESPONSES IN Y DIRECTION, WITH AND WITHOUT CONTROL 0.25 WITH PIEZO CONTROL **UNCONTROLLED** 0.2 0.15 DISPLACEMENT (mm) 0.1 0.05 0 -0.05-0.1₀ 0.1 0.15 0.2 0.05 0.25 0.3 0.35 0.45 0.4 0.5 FREQUENCY (Hz)

FIG.12



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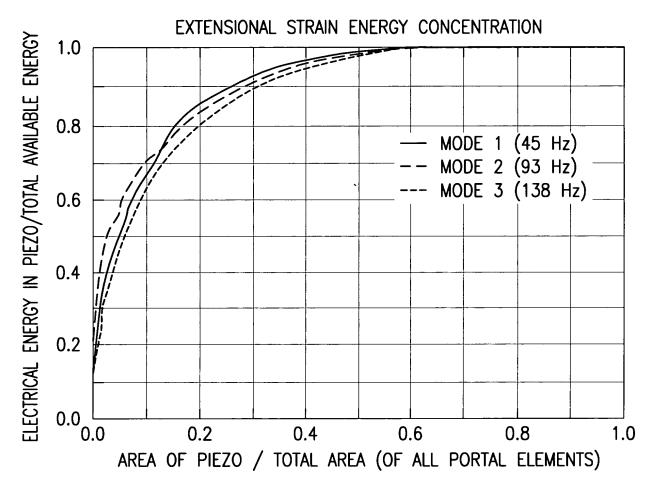


FIG.13



Title: Multi-Input, Multi-Output Motion Control for a

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TRANSFER FUNCTION FROM QUICKPACKS TO VERTICAL ACCEL AT HEAD

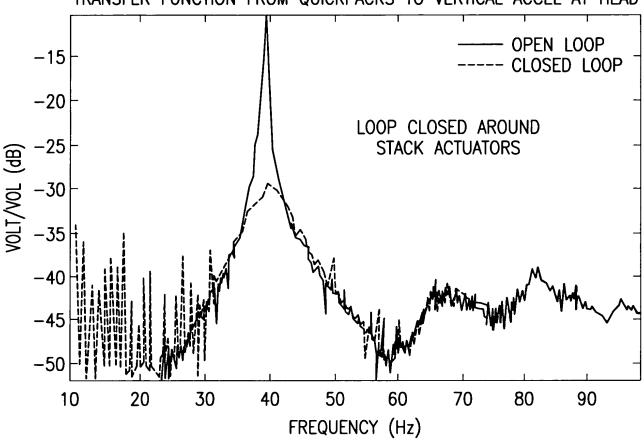


FIG.14



Title: Multi-Input, Multi-Output Motion Control for a

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TRANSFER FUNCTION FROM QUICKPACKS TO VERTICAL ACCEL AT HEAD

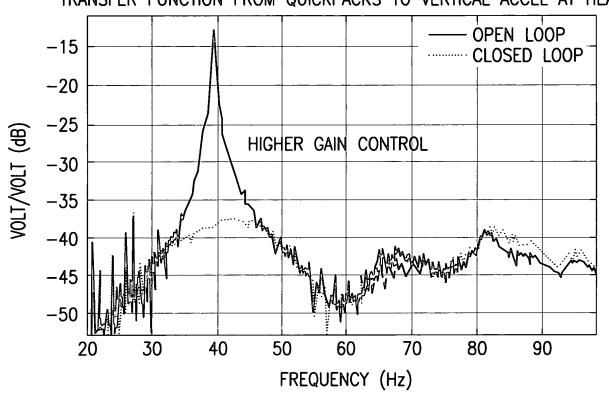
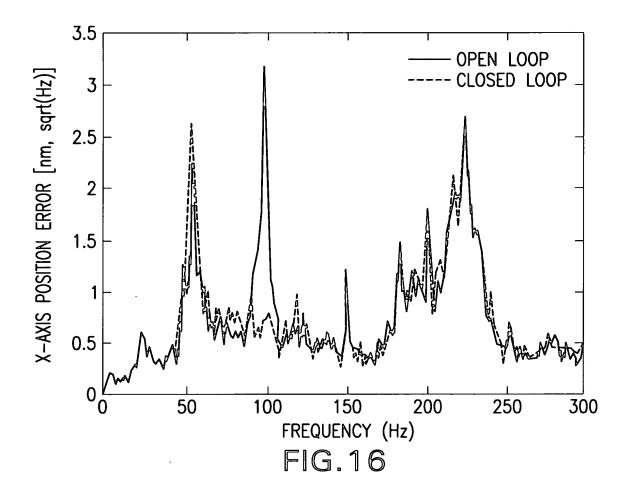


FIG. 15



Title: Multi-Input, Multi-Output Motion Control for a

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Title: Multi-Input, Multi-Output Motion Control for a

Lithography System
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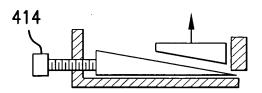


FIG.17

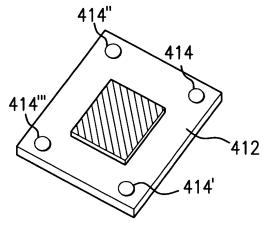


FIG.18

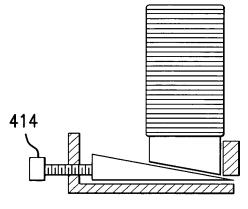


FIG.19

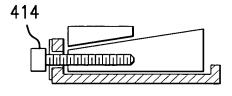
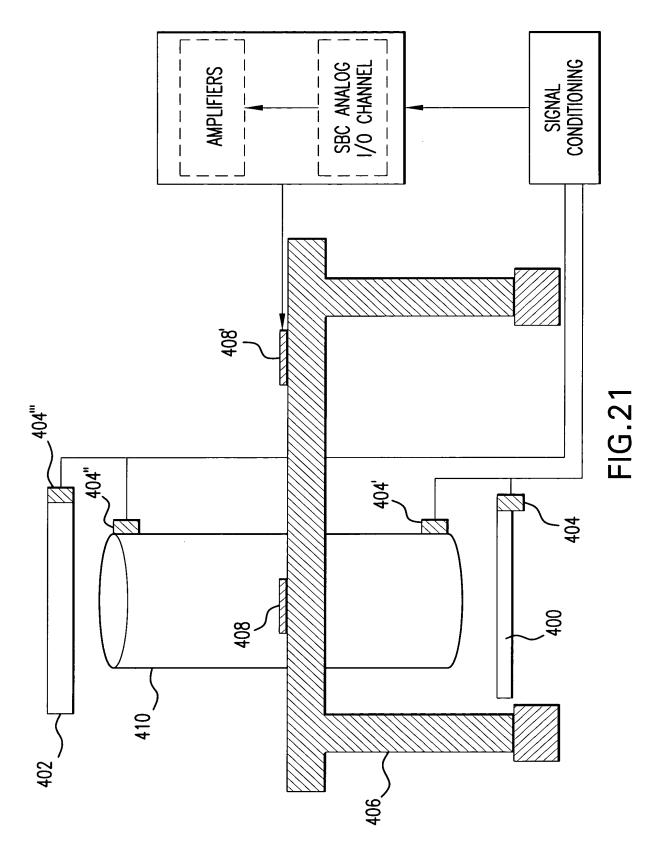


FIG.20



Title: Multi-Input, Multi-Output Motion Control for a
Lithography System

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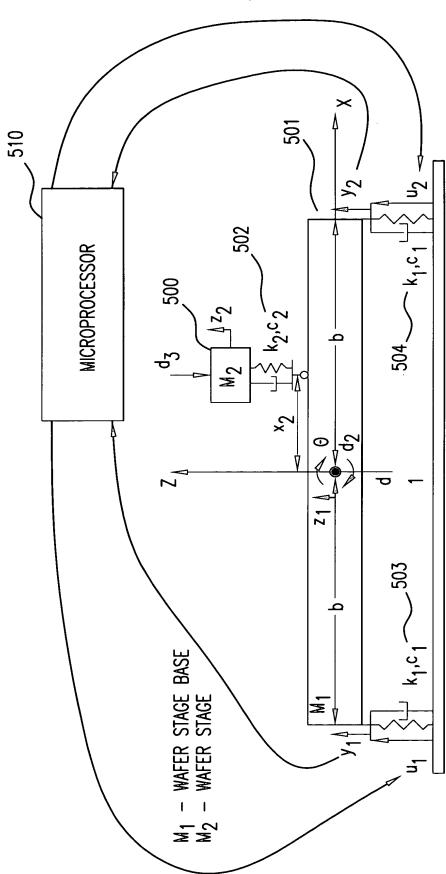
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 \circ INPUTS (u_1): VOICE COIL FORCES ON BASE IN Z \circ OUTPUTS (y_1): LASER DISPLACEMENT MEASUREMENTS COLLOCATED WITH VOICE COIL INPUTS

DISTURBANCÈS (d1): Z-FORCE AND 0 MOMENT ON BASE, Z FORCE ON STAGE

FIG.22